REMARKS

Claims 1-20 were examined and reported in the Office Action. Claims 5-10, 12-16, 19, and 20 have been withdrawn from consideration. Claims 1-4, 11, 17 and 18 are rejected. Claims are amended, claims are cancelled, and claims are added. Claims 1-20 remain in the application. Applicant requests reconsideration of the application in view of the following remarks.

III. Claim Rejections under 35 U.S.C. §102

Claims 1-4 and 11 stand rejected under 35 U.S.C. § 102(e), as being anticipated by U. S. Patent 6,578,145 to Hou ("Hou"). Applicant respectfully traverses the rejection.

Claim 1 recites:

> A data conversion/output apparatus comprising:
> a plurality of sensors;
> voltage-time conversion circuits which are arranged adjacent to said respective plurality of sensors and change output levels upon the lapse of times corresponding to output voltage values of said plurality of sensors from a conversion operation start point in order to convert voltage outputs of said plurality of sensors into times; and
> sensed data generation circuits for outputting, as digital data, lapse times until the output levels of said voltage-time conversion circuits change after a conversion start point, said sensed data generation circuits include a counter which counts a clock signal and operates independently of the plurality of sensors, and a maximum value of the counter being arbitrarily adjustable.

Hou generally relates to image sensors that generate digital signals from light integration processes. As described by Hou, the purpose of the present invention is to provide a generic solution for direct readout of charge signals from photodetectors in an image sensor that minimizes signal distortions. In contrast with Claim 1, Hou does not disclose or suggest sensed data generation circuits for outputting, as digital data, lapse times until the output levels of said voltage-time conversion circuits change after a conversion start point, said sensed data

generation circuits including a counter which counts a clock signal and operates independently of the plurality of sensors, and a maximum value of the counter being arbitrarily adjustable.

According to the Examiner, col. 6, lines 62-65 of Hou teaches the feature of the pixel array operating independently of the counter as recited in Claim 1. In contrast with Claim 1, Hou states in col. 5, line 65 to col. 6, line 1 that "when an appropriate reset signal is applied to reset connector 304, photodetectors 302 are all cleared and starts [*sic*] light integration process, namely accumulating photons from image light 306." In fact, Hou states in col. 6, lines 47-51 that "to be more specific, a time mark signal 320 is applied at mark time signal connector 310 from which counter 311 counts the time marks in time mark signal 320 once the light integration of all the photodetectors starts." We submit that these two statements suggest that a new accumulation of incident photons by each photodetector (302) is started simultaneously with the counting of the time marks by the counter (311) responsive to the application of a reset signal. Hence, "the counter" of Hou starts its operation simultaneously with "the plurality of sensors" ("plurality of photodetectors" in Hou).

Nevertheless, the Examiner has stated (at page 3, lines 7-10) that "in fact, because the counter continues counting even after certain photodetectors accumulating [*sic*] enough photons to reach the reference level it is clear that the counter operates independently of the plurality of sensors." This observation assumes that the accumulation of photons from image light is stopped when the photodetector (302) has accumulated enough incident photons to thereby suggest that the stop timing of photons accumulation at the photodetector (302) does not coincide with the stop timing of counting at the counter (311). However, the above assumption that, when a sufficient quantity of incident photons is accumulated, the photodetector (302) stops accumulating photons from image light is not taught anywhere in Hou. In this respect, the Examiner may have misconstrued the description that when the photodetector (320) has accumulated enough photons the latch circuit (314) latches the count output from the counter (311) as meaning that when the photodetector (302) has accumulated enough photons the photodetector (302) stops accumulating incident photons.

In contrast with Claim 1, Hou states in col. 6, lines 62-65 that "it should be noted, however, that counter 311 continues the counting of the time marks in the time mark signal and is reset only at the end of the light integration." This means that the accumulation of incident photons at a plurality of sensors (photodetectors) and counting operation of the counter are stopped simultaneously. Thus it would be apparent that in Hou "the counter" and "the plurality of sensors" (photodetectors) stop operating simultaneously. Consequently, Hou teaches that "the counter" both starts and stops operating simultaneously with "the plurality of sensors" (photodetectors). Therefore, the feature that "the counter" operates independently of "the plurality of sensors," as in Claim 1, is not taught in Hou.

For each of the above reasons, therefore, Claim 1 and all claims which depend on Claim 1 are patentable over Hou as well as the other references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §102(e) rejection of Claims 1-4 and 11.

IV. Claim Rejections under 35 U.S.C. §103

Claims 17 and 18 stand rejected under 35 U.S.C. § 103(a), as being obvious over "*A Digital Camera for Machine Vision*", Conference on Industrial Electronics, Control and Instrumentation, 1994, by A. Simoni et al ("Simoni") in view of Hou. Applicant respectfully traverses the rejection.

Claim 17 recites the following feature that is not taught or suggested by Simoni in view of Hou: "a counter for sequentially outputting count values in accordance with internal count operation and for operating independently of each sensor in each pixel of the matrix, and a maximum value of the counter being arbitrarily adjustable."

While Applicant's argument here is directed to the cited combination of references, it is necessary to first consider their individual teachings, in order to ascertain what combination (if any) could be made from them.

The above-highlighted feature of Claim 17 is similar to the previously-highlighted feature of Claim 1. For at least the reasons provided above with reference to Claim 1, the counter of Claim 17 that operates independently of each sensor in each pixel of the matrix is not taught or suggested by Hou. Furthermore, the Examiner has failed to identify, and we are unable to discern, any portion of Simoni that teaches or suggests a counter for sequentially outputting count values in accordance with internal count operation and for operating independently of each sensor in each pixel of the matrix, and a maximum value of the counter being arbitrarily adjustable, as in Claim 17.

Hence, no combination of Simoni in view of Hou can teach or suggest a counter that sequentially outputs count values according to an internal count operation and operates independently of each sensor in each pixel of a matrix, as in Claim 17.

For each of the above reasons, therefore, Claim 17 and all claims which depend on Claim 17 are patentable over the combination of Simoni and Hou, as well as the other references of record. Consequently, Applicants respectfully request that the Examiner reconsider and withdraw the §103(a) rejection of Claims 17 and 18.

DEPENDENT CLAIMS

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicant's silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

PETITION FOR EXTENSION OF TIME

Per 37 C.F.R. 1.136(a) and in connection with the Office Action mailed on April 17, 2008, Applicant respectfully petitions the Commissioner for a one (1) month extension of time, extending the period for response to August 17, 2008. The Commissioner is hereby authorized to charge payment to Deposit Account No. 02-2666 in the amount of $120.00 to cover the petition filing fee for a 37 C.F.R. 1.17(a)(1) large entity.

CONCLUSION

In view of the foregoing, it is submitted that claims 1-4, 11, 17, and 18 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

Dated: August 15, 2008

By: _____
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CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below to the United States Patent and Trademark Office.

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Alexandra Y. Caluen Date: August 15, 2008